



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/270,128	03/16/1999	THOMAS R. MILLER	94.0016	2059

7590 06/16/2004

GEOQUEST
SCHLUMBERGER TECHNOLOGY CORPORATION
5599 SAN FELIPE
SUITE 1700
HOUSTON, TX 770562722

EXAMINER

THANGAVELU, KANDASAMY

ART UNIT	PAPER NUMBER
----------	--------------

2123

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/270,128	MILLER, THOMAS R.	
	Examiner	Art Unit	
	Kandasamy Thangavelu	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. This communication is in response to the Applicants' Amendment dated May 5, 2004. Claims 1, 10, 15, 16, 20, 22, 24 and 26 were amended. Claims 1-27 of the application are pending and rejected. This office action is made non-final.

Response to Arguments

2. Applicant's arguments filed on May 5, 2004 have been fully considered. The arguments with respect to 103 (a) rejections are not persuasive. Examiner's response to Applicant's arguments is presented in Paragraph 8 below.

Abstract

3. The abstract is objected to because of the following informalities:

The amended abstract Lines 12-13 state, "This abstract is given for the sole purpose of allowing a searcher to easily determine the content of the disclosure of this application" is considered superfluous. The examiner requests that this statement be removed from the abstract.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 10, 16, 20, 22-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huang et al. (HU)** (U.S. Patent 6,151,582), in view of **Rumbaugh et al. (RU)** (Object oriented modeling and Design, 1991).

5.1 HU teaches Decision support system for the management of an agile supply chain. Specifically, as per Claim 1, HU teaches a simulation system used by an operator and including a source of input data, a display, and a simulator adapted to be executed by a processor and

Art Unit: 2123

generating a set of simulation results during the execution in response to the input data (Col 96, Lines 35-37; Col 95, Lines 63-64; Col 96, Lines 18-28 and Col 96, Lines 57-58);

an organizing and managing system operatively interconnected between the source of input data and the simulator and the display (Col 94, Lines 42-45);

one or more of the sets and the supersets of the test data files adapted to be selected by the operator (Col 95, Lines 3-4);

editing means responsive to the one or more of the sets and the supersets of the test data files selected by the operator via the case manager and responsive to the input data for editing the test data files and the input data in response to editing actions taken by the operator and generating a set of edited test data files (Col 96, Lines 44-45 and Col 94, Lines 41-45); and

the simulator generating the set of simulation results during the execution of the simulator in response to the set of edited test data files (Col 95, Lines 63-64; Col 96, Lines 35-37 and Col 96, Lines 57-58).

HU further teaches a case manager adapted for storing a plurality of sets and supersets of test data files, the sets and supersets of test data files being stored in the case manager in the form of a tree like structure (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach the sets and supersets of test data files being stored in the case manager in the form of a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the supersets underlying corresponding ones of the sets in the tree like structure. **RU** teaches the sets and supersets of test data files being stored in the case manager in the form of a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the supersets underlying corresponding ones of the

sets in the tree like structure (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the organizing and managing system of **HU** with the organizing and managing system of **RU** that included the sets and supersets of test data files being stored in the case manager in the form of a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the supersets underlying corresponding ones of the sets in the tree like structure, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

5.2 As per Claim 10, **HU** teaches in a simulation system used by an operator, a method for generating a set of simulation results in response to a set of input data and displaying the set of simulation results (Col 96, Lines 35-37; Col 95, Lines 63-64; Col 96, Lines 18-28 and Col 96, Lines 57-58);

the sets of the data and the supersets of the data adapted to be selected by the operator (Col 95, Lines 3-4);

generating the sets of the data from the case manager storage medium when the sets of data are selected by the operator (Col 94, Lines 42-45); and

submitting the sets of data to a simulator in response to the generating step, the simulator executing and generating the set of simulation results in response to the sets of data and

Art Unit: 2123

displaying the set of simulation results (Col 95, Lines 63-64; Col 96, Lines 35-37 and Col 96, Lines 57-58).

HU further teaches storing the input data in a case manager storage medium in the form of a tree like structure, the input data including a plurality of sets of data and a plurality of supersets of the data, the sets of the data and the supersets of the data being stored in the case manager storage medium in the form of the tree like structure (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach storing the input data in a case manager storage medium in the form of a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the supersets underlie corresponding ones of the sets in the tree like structure. **RU** teaches storing the input data in a case manager storage medium in the form of a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the supersets underlie corresponding ones of the sets in the tree like structure (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** with the simulation system of **RU** that included storing the input data in a case manager storage medium in the form of a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the supersets underlie corresponding ones of the sets in the tree like structure, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

5.3 As per Claim 16, **HU** teaches a device, comprising means for storing instructions which are executable by a processor of a computer, the instructions adapted for use by a simulation system for generating a set of simulation results in response to a selected set of data and displaying the set of simulation results (Col 96, Lines 35-37; Col 95, Lines 63-64 and Col 96, Lines 57-58);

the plurality of sets of data and the plurality of supersets of data adapted to be selected by an operator via the tree like structure on the display (Col 95, Lines 3-4);

presenting for display an editing means when the plurality of sets of data or the plurality of supersets of data are selected by the operator via the tree like structure on the display, the data adapted to be edited by the operator via editing means on the display thereby generating edited data (Col 96, Lines 44-45 and Col 94, Lines 45-46); and

submitting the edited data to a simulator when the data is edited by the operator via the editing means on the display (Col 95, Lines 63-64 and Col 96, Lines 35-37).

HU teaches presenting for display a tree like structure representing a plurality of sets of data and a plurality of supersets of the data which are stored therein in the form of the tree like structure (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach a hierarchical, non-conventional tree like structure representing a plurality of sets of data and a plurality of supersets of the data which are stored therein in the form of the tree like structure, the tree like structure being non-conventional in that the supersets underlie corresponding ones of the sets in the tree like structure. **RU** teaches a hierarchical, non-conventional tree like structure representing a plurality of sets of data and a

Art Unit: 2123

plurality of supersets of the data which are stored therein in the form of the tree like structure, the tree like structure being non-conventional in that the supersets underlie corresponding ones of the sets in the tree like structure (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the device of **HU** with the device of **RU** that included a hierarchical, non-conventional tree like structure representing a plurality of sets of data and a plurality of supersets of the data which are stored therein in the form of the tree like structure, the tree like structure being non-conventional in that the supersets underlie corresponding ones of the sets in the tree like structure, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

5.4 As per Claim 20, **HU** teaches at least one of the set of data and the corresponding superset of the set of data adapted to be selected by an operator from the tree like structure of the case manager (Col 95, Lines 3-4); and

a simulation system, comprising a simulator responsive to the at least one of the set of data and the corresponding superset of the sets of data which is selected by the operator from the tree like structure in the case manager adapted for executing and using, during the execution, the at least one of the set of data and the corresponding superset of the set of data thereby generating a set of simulation results; and means for displaying or recording the set of simulation results (Col 95, Lines 63-64 and Col 96, Lines 35-37; Col 96, Lines 57-58).

HU teaches a case manager adapted for storing input data and organizing the input data in the case manager in a tree like structure, the input data including a set of data and a corresponding superset of the set of data (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach a case manager adapted for storing input data therein and organizing the input data in the case manager in a hierarchical, non-conventional tree like structure, the input data including a set of data and a corresponding superset of the set of data, the tree like structure being non-conventional in that the superset of the set of data underlies the set of data in the tree like structure, a superset storing data therein which is also stored in a corresponding set of data but the superset further storing additional data therein which is not stored in the corresponding set of data. **RU** teaches a case manager adapted for storing input data therein and organizing the input data in the case manager in a hierarchical, non-conventional tree like structure, the input data including a set of data and a corresponding superset of the set of data, the tree like structure being non-conventional in that the superset of the set of data underlies the set of data in the tree like structure, a superset storing data therein which is also stored in a corresponding set of data but the superset further storing additional data therein which is not stored in the corresponding set of data (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** with the system of **RU** that included a case manager adapted for storing input data therein and organizing the input data in the case manager in a

Art Unit: 2123

hierarchical, non-conventional tree like structure, the input data including a set of data and a corresponding superset of the set of data, the tree like structure being non-conventional in that the superset of the set of data underlies the set of data in the tree like structure, a superset storing data therein which is also stored in a corresponding set of data but the superset further storing additional data therein which is not stored in the corresponding set of data, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

5.5 As per Claim 22, **HU** teaches a device adapted for storing instructions which, when executed by a processor, conducts a process comprising executing a simulator using input data during the execution of the simulator (Col 96, Lines 35-37; Col 95, Lines 63-64);

the step of executing the simulator using the input data includes selecting, by an operator, either the set of data or the superset of the set of data, the data selected during the selecting step representing the input data used by the simulator during the execution of the simulator (Col 95, Lines 3-4); and

the step of executing the simulator using the input data includes executing the simulator using the data selected during the selecting step (Col 95, Lines 63-64 and Col 96, Lines 35-37).

HU teaches that the step of executing the simulator using the input data includes accessing a case manager, the case manager including at least one set of data and at least one superset of the set of data organized in the case manager in a tree like structure. (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach a case manager including at least one set of data and at least one superset of the set of data organized in the case manager in a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the superset of the set of data underlies the set of data in the tree like structure, the set of data including a first group of data, the superset of the set of data including the first group of data plus additional data which is not included in the set of data. **RU** teaches a case manager including at least one set of data and at least one superset of the set of data organized in the case manager in a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the superset of the set of data underlies the set of data in the tree like structure, the set of data including a first group of data, the superset of the set of data including the first group of data plus additional data which is not included in the set of data (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the device of **HU** with the device of **RU** that included a case manager including at least one set of data and at least one superset of the set of data organized in the case manager in a hierarchical, non-conventional tree like structure, the tree like structure being non-conventional in that the superset of the set of data underlies the set of data in the tree like structure, the set of data including a first group of data, the superset of the set of data including the first group of data plus additional data which is not included in the set of data, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

5.6 As per Claim 23, **HU** and **RU** teach the device of Claim 22. **HU** also teaches that the step of executing the simulator using the input data includes editing the data selected during the selecting step creating edited data, the edited data representing the input data used by the simulator during the execution of the simulator (Col 94, Lines 45-46).

5.7 As per Claim 24, **HU** teaches a simulation system including a method of performing a simulation, comprising selecting by an operator, at least one of the sets of data or at least one of the supersets of data in the tree like structure of the case manager, the selected data being generated from the case manager when the selected data is selected by the operator (Col 94, Lines 42-45 and Col 95, Lines 3-4); and

receiving the selected data, selected by the operator during the selecting step in the simulator and performing by the simulator the simulation, and using by the simulator the selected data which is received in the simulator during the receiving step. (Col 95, Lines 63-64 and Col 96, Lines 35-37).

HU teaches in a simulation system including a case manager and a simulator operatively connected to the case manager, the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in the form of a tree like structure, each of the sets of data including a group of data (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in

Art Unit: 2123

the form of a hierarchical, non-conventional tree like structure, each of the sets of data including a group of data, each of the corresponding supersets of data including the group of data plus additional data not included within the corresponding sets of data, the tree like structure being non-conventional in that the supersets of the set of data underlie the corresponding sets of data in the tree like structure. **RU** teaches the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in the form of a hierarchical, non-conventional tree like structure, each of the sets of data including a group of data, each of the corresponding supersets of data including the group of data plus additional data not included within the corresponding sets of data, the tree like structure being non-conventional in that the supersets of the set of data underlie the corresponding sets of data in the tree like structure (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** with the system of **RU** that included the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in the form of a hierarchical, non-conventional tree like structure, each of the sets of data including a group of data, each of the corresponding supersets of data including the group of data plus additional data not included within the corresponding sets of data, the tree like structure being non-conventional in that the supersets of the set of data underlie the corresponding sets of data in the tree like structure, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

5.8 As per Claim 26, **HU** teaches a device adapted for storing instructions and adapted to be disposed in a computer, the instructions adapted to be executed by a processor of the computer when the device is disposed in the computer, the processor performing method steps for performing a simulation in a simulation system when the instructions are executed by the processor of the computer (Col 96, Lines 35-37; Col 95, Lines 63-64);

the method steps for performing the simulation in the simulation system comprising selecting by an operator, at least one of the sets of data or at least one of the supersets of data in the tree like structure of the case manager, the selected data being generated from the case manager when the selected data is selected by the operator (Col 95, Lines 3-4); and

the method steps for performing the simulation in the simulation system comprising receiving the selected data, selected by the operator during the selecting step in the simulator, and performing by the simulator the simulation and using by the simulator the selected data which is received in the simulator during the receiving step (Col 95, Lines 63-64 and Col 96, Lines 35-37).

HU teaches the simulation system including a case manager and a simulator operatively connected to the case manager, the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in the form of a tree like structure, each of the sets of data including a group of data (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in

Art Unit: 2123

the form of a hierarchical, non-conventional tree like structure, each of the sets of data including a group of data, each of the corresponding supersets of data including the group of data plus additional data not included within the corresponding sets of data, the tree like structure being non-conventional in that the supersets of the set of data underlie the corresponding sets of data in the tree like structure. **RU** teaches the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in the form of a hierarchical, non-conventional tree like structure, each of the sets of data including a group of data, each of the corresponding supersets of data including the group of data plus additional data not included within the corresponding sets of data, the tree like structure being non-conventional in that the supersets of the set of data underlie the corresponding sets of data in the tree like structure (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the device of **HU** with the device of **RU** that included the case manager including a plurality of sets of data and a corresponding plurality of supersets of data organized together in the case manager in the form of a hierarchical, non-conventional tree like structure, each of the sets of data including a group of data, each of the corresponding supersets of data including the group of data plus additional data not included within the corresponding sets of data, the tree like structure being non-conventional in that the supersets of the set of data underlie the corresponding sets of data in the tree like structure, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

6. Claims 2-9,11-14, 17-19, 21, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Huang et al. (HU)** (U.S. Patent 6,151,582), in view of **Rumbaugh et al. (RU)** (Object oriented modeling and Design, 1991), and further in view of **Cowgill (CO)** (U.S. Patent 5,835,566).

6.1 As per Claim 2, **HU** and **RU** teach the organizing and managing system of Claim 1. **HU** and **RU** do not expressly teach that the editing means comprises a case builder adapted for receiving a first set of keywords associated with the input data and a second set of keywords associated with the one or more of the sets and the supersets of the test data files selected by the operator via the case manager for editing the first set of keywords and the second set of keywords in response to editing actions taken by the operator thereby generating a third set of keywords; and a simulation file adapted for storing the third set of keywords. **CO** teaches that the editing means comprises a case builder adapted for receiving a first set of keywords associated with the input data and a second set of keywords associated with the one or more of the sets and the supersets of the test data files selected by the operator via the case manager for editing the first set of keywords and the second set of keywords in response to editing actions taken by the operator thereby generating a third set of keywords; and a simulation file adapted for storing the third set of keywords (Col 12, Lines 34-37; Fig. 8, Item 820), as that provides a user friendly environment so that the user can create test cases and store the cases for execution (Col 12, Lines 38-40). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the organizing and managing system of **HU** and **RU** with the organizing and

managing system of **CO** that included the editing means comprising a case builder adapted for receiving a first set of keywords associated with the input data and a second set of keywords associated with the one or more of the sets and the supersets of the test data files selected by the operator via the case manager for editing the first set of keywords and the second set of keywords in response to editing actions taken by the operator thereby generating a third set of keywords; and a simulation file adapted for storing the third set of keywords, as that would provide a user friendly environment so that the user could create test cases and store the cases for execution.

6.2 As per Claim 3, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 2. **HU** teaches that editing means further comprises a run manager adapted for receiving the third set of keywords from the simulation file and submitting the third set of keywords to the simulator, the simulator using the third set of keywords from the simulation file during its execution by the processor and, responsive thereto, generating the set of simulation results (Col 96, Lines 35-37; Col 96, Lines 18-26).

6.3 As per Claim 4, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 3. **HU** teaches that the display includes a results viewer, the results viewer adapted to display the set of simulation results generated from the simulator (Col 96, Lines 57-58).

6.4 As per Claim 5, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 4. **HU** and **RU** do not expressly teach that the display includes a report generator, the report generator adapted to generate a report describing the set of simulation results generated from the

Art Unit: 2123

simulator. **CO** teaches that the display includes a report generator, the report generator adapted to generate a report describing the set of simulation results generated from the simulator (Col 12, Lines 54-58), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the organizing and managing system of **HU** and **RU** with the organizing and managing system of **CO** that included the display having a report generator, the report generator adapted to generate a report describing the set of simulation results generated from the simulator, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation.

6.5 As per Claim 6, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 3. **HU** and **RU** do not expressly teach that the run manager includes monitoring means for monitoring the third set of keywords received from the simulation file. **CO** teaches that the run manager includes monitoring means for monitoring the third set of keywords received from the simulation file (Col 12, Lines 54-58), as that would allow generation of expected results for use in the analysis of the simulation results and for comparison between them (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the organizing and managing system of **HU** and **RU** with the organizing and managing system of **CO** that included the run manager having monitoring means for monitoring the third set of keywords received from the simulation file, as that would allow generation of expected results for use in the analysis of the simulation results and comparison between them.

6.6 As per Claim 7, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 6. **HU** and **RU** do not expressly teach that the organizing and managing system comprises a results file adapted to be operatively connected to the simulator for receiving the set of simulation results from the simulator and storing the set of simulation results therein, the run manager receiving the third set of keywords from the simulation file and the set of simulation results from the results file thereby allowing the third set of keywords to be compared by an operator with the set of simulation results. **CO** teaches that the organizing and managing system comprises a results file adapted to be operatively connected to the simulator for receiving the set of simulation results from the simulator and storing the set of simulation results therein, the run manager receiving the third set of keywords from the simulation file and the set of simulation results from the results file thereby allowing the third set of keywords to be compared by an operator with the set of simulation results (Col 12, Lines 54-58 and Col 12, Lines 62-63), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the organizing and managing system of **HU** and **RU** with the organizing and managing system of **CO** that included a results file adapted to be operatively connected to the simulator for receiving the set of simulation results from the simulator and storing the set of simulation results therein, the run manager receiving the third set of keywords from the simulation file and the set of simulation results from the results file thereby allowing the third set of keywords to be compared by an operator with the set of simulation results, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation.

6.7 As per Claim 8, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 7.

HU teaches that the display includes a results viewer connected to the results file, the results viewer adapted to display the set of simulation results received from the results file.

(Col 96, Lines 57-58 and Col 94, Lines 45-46).

6.8 As per Claim 9, **HU**, **RU** and **CO** teach the organizing and managing system of Claim 8.

HU and **RU** do not expressly teach that the display includes a report generator connected to the results file, the report generator adapted to generate a report describing the set of simulation results received from the results file. **CO** teaches that the display includes a report generator connected to the results file, the report generator adapted to generate a report describing the set of simulation results received from the results file (Col 12, Lines 54-58), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the organizing and managing system of **HU** and **RU** with the organizing and managing system of **CO** that included the display having a report generator connected to the results file, the report generator adapted to generate a report describing the set of simulation results received from the results file, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58)..

Art Unit: 2123

6.9 As per Claim 11, **HU** and **RU** teach the method of Claim 10. **HU** teaches that the submitting step includes editing a first set of keywords representing the sets of data and generating a second set of keywords representing edited versions of the sets of data (Col 94, Lines 45-46); and the submitting step includes submitting the second set of keywords to the simulator in response to the editing step, the simulator executing and generating the set of simulation results in response to the second set of keywords (Col 96, Lines 35-37).

6.10 As per Claim 12, **HU** and **RU** teach the method of Claim 11. **HU** teaches that displaying step includes storing the set of simulation results which are generated from the simulator, in a results file; and displaying the set of simulation results which are stored in the results file (Col 96, Lines 57-58 and Col 94, Lines 45-46).

6.11 As per Claim 13, **HU** and **RU** teach the method of Claim 12. **HU** and **RU** do not expressly teach that the step of storing the set of simulation results in a results file comprises comparing the second set of keywords submitted to the simulator with the set of simulation results stored in the results file and storing the set of simulation results, which are generated from the simulator, in a results file. **CO** teaches that the step of storing the set of simulation results in a results file comprises comparing the second set of keywords submitted to the simulator with the set of simulation results stored in the results file and storing the set of simulation results, which are generated from the simulator, in a results file (Col 12, Lines 54-58 and Col 12, Lines 62-63), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious

Art Unit: 2123

to one of ordinary skill in the art at the time of Applicant's invention to modify the method of **HU** and **RU** with the method of **CO** that included comparing the second set of keywords submitted to the simulator with the set of simulation results stored in the results file and storing the set of simulation results, which are generated from the simulator, in a results file, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation.

6.12 As per Claim 14, **HU** and **RU** teach the method of Claim 13. **HU** teaches the step of displaying the set of simulation results which are stored in the results file includes displaying the set of simulation results via a results viewer. (Col 96, Lines 57-58).

HU and **RU** do not expressly teach that the step of displaying the set of simulation results which are stored in the results file includes generating a report documenting the set of simulation results via a report generator. **CO** teaches that the step of displaying the set of simulation results which are stored in the results file includes generating a report documenting the set of simulation results via a report generator (Col 12, Lines 54-58), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of **HU** and **RU** with the method of **CO** that included the step of displaying the set of simulation results which are stored in the results file including generating a report documenting the set of simulation results via a report generator, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation.

6.13 As per Claim 17, **HU** and **RU** teach the device of Claim 16. **HU** teaches that the device further comprises receiving a set of simulation results from the simulator when the edited data is submitted to the simulator and storing the set of simulation results in a results file (Col 94, Lines 45-46).

6.14 As per Claim 18, **HU** and **RU** teach the device of Claim 17. **HU** and **RU** do not expressly teach that the device further comprises monitoring the edited data submitted to the simulator, and comparing the edited data submitted to the simulator with the set of simulation results generated from the simulator. **CO** teaches that the device further comprises monitoring the edited data submitted to the simulator, and comparing the edited data submitted to the simulator with the set of simulation results generated from the simulator (Col 12, Lines 54-58), as as per **HU**, that would allow the user to adjust the parameters and input data interactively and perform Visual interactive simulation (Col 97, Lines 13-18). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the device of **HU** and **RU** with the device of **CO** that included monitoring the edited data submitted to the simulator, and comparing the edited data submitted to the simulator with the set of simulation results generated from the simulator, as as per **HU**, that would allow the user to adjust the parameters and input data interactively and perform Visual interactive simulation.

6.15 As per Claim 19, **HU**, **RU** and **CO** teach the device of Claim 18. **HU** and **RU** do not expressly teach that the device further comprises transmitting to a display the set of simulation

Art Unit: 2123

results which are stored in the results file approximately simultaneously with the monitoring of the set of simulation results. **CO** teaches that the device further comprises transmitting to a display the set of simulation results which are stored in the results file approximately simultaneously with the monitoring of the set of simulation results (Col 12, Lines 54-58), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the device of **HU** and **RU** with the device of **CO** that included transmitting to a display the set of simulation results which are stored in the results file approximately simultaneously with the monitoring of the set of simulation results, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation.

6.16 As per Claim 21, **HU** and **RU** teach the simulation system of Claim 20. **HU** and **RU** do not expressly teach that the simulation system comprises a case builder operatively connected to the case manager and responsive to the at least one of the set of data and the corresponding superset of the set of data which is selected by the operator from the tree like structure of the case manager adapted for allowing the operator to edit the at least one of the set of data and the corresponding superset of the set of data which is selected by the operator from the tree like structure of the case manager thereby generating edited data. **CO** teaches that the simulation system comprises a case builder operatively connected to the case manager and responsive to the at least one of the set of data and the corresponding superset of the set of data which is selected by the operator from the tree like structure of the case manager adapted for allowing the operator

to edit the at least one of the set of data and the corresponding superset of the set of data which is selected by the operator from the tree like structure of the case manager thereby generating edited data (Col 12, Lines 34-37), as that provides a user friendly environment so that the user can create test cases and store the cases for execution (Col 12, Lines 38-40). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** and **RU** with the simulation system of **CO** that included a case builder operatively connected to the case manager and responsive to the at least one of the set of data and the corresponding superset of the set of data which is selected by the operator from the tree like structure of the case manager adapted for allowing the operator to edit the at least one of the set of data and the corresponding superset of the set of data which is selected by the operator from the tree like structure of the case manager thereby generating edited data, as that provides a user friendly environment so that the user can create test cases and store the cases for execution.

6.17 As per Claim 25, **HU** and **RU** teach the method of Claim 24. **HU** teaches the simulation system further includes the edited data being received in the simulator during the receiving step and the simulator performing the simulation and using the edited data in the simulation during the performing step (Col 96, Lines 35-37).

HU and **RU** do not expressly teach that the simulation system further includes a case builder operatively interposed between the case manager and the simulator and adapted for editing the selected data generated from the case manager when the selected data is selected by the operator during the selecting step; when the selected data is generated from the case manager in response to the selecting step, editing by the operator the selected data in the case builder

Art Unit: 2123

generating edited data. **CO** teaches that the simulation system further includes a case builder operatively interposed between the case manager and the simulator and adapted for editing the selected data generated from the case manager when the selected data is selected by the operator during the selecting step; when the selected data is generated from the case manager in response to the selecting step, editing by the operator the selected data in the case builder generating edited data (Col 12, Lines 34-37), as that facilitates the user to create test cases in a user friendly environment and store the cases for execution (Col 12, Lines 38-40). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** and **RU** with the simulation system of **CO** that included a case builder operatively interposed between the case manager and the simulator and adapted for editing the selected data generated from the case manager when the selected data is selected by the operator during the selecting step; when the selected data is generated from the case manager in response to the selecting step, editing by the operator the selected data in the case builder generating edited data, as that would facilitate the user to create test cases in a user friendly environment and store the cases for execution.

6.18 As per Claim 27, it is rejected based on the same reasoning as Claim 25, supra. Claim 27 is device claim reciting the same limitations as Claim 25, as taught throughout by **HU**, **RU** and **CO**.

7. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Huang et al.** (**HU**) (U.S. Patent 6,151,582), in view of **Rumbaugh et al.** (**RU**) (Object oriented modeling and

Art Unit: 2123

Design, 1991), and **Cowgill (CO)** (U.S. Patent 5,835,566) and further in view of **Gunsekara (GU)** (U.S. Patent 6,018,497).

7.1 As per Claim 15, **HU** teaches a simulation system responsive to a plurality of sets of input data generating a set of simulation results in response to the simulation, and displaying the set of simulation results (Col 96, Lines 35-37; Col 95, Lines 63-64 and Col 96, Lines 57-58);

an operator selecting one or more of the case scenarios in the case manager (Col 95, Lines 3-4);

the simulation system comprises case builder means for receiving the one or more of the case scenarios selected by the operator, editing or changing a set of data disposed within the selected case scenarios in response to editing actions taken by the operator, and, responsive thereto, generating a set of edited case scenarios (Col 94, Lines 45-46);

the simulation system comprises run manager means responding to the set of edited case scenarios from the case builder means for submitting the edited case scenarios to a simulator, the simulator responding to the edited case scenarios from the run manager means by executing and thereby generating the set of simulation results, the set of simulation results from the simulator being stored in a results file (Col 96, Lines 35-37); and

results viewer means for displaying the set of simulation results generated by the simulator, the results viewer displaying the set of simulation results and any instantaneous changes being made to the set of simulation results at any point in time (Col 96, Lines 57-58).

HU does not expressly teach a simulation system responsive to a plurality of sets of input data for simulating an earth formation located in the vicinity of an oilfield reservoir. **GU** teaches

Art Unit: 2123

a simulation system responsive to a plurality of sets of input data for simulating an earth formation located in the vicinity of an oilfield reservoir (Col 1, Line 21 to Col 2, Line 3), as that facilitates generating accurate information relating to the transmissibility properties and flow properties of the cells imposed on the earth formation (Col 1, Lines 23-28; Col 1, Lines 54-55).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** with the simulation system of **GU** that included a system responsive to a plurality of sets of input data for simulating an earth formation located in the vicinity of an oilfield reservoir, as that would facilitate generating accurate information relating to the transmissibility properties and flow properties of the cells imposed on the earth formation.

HU teaches a case manager means for organizing and managing the plurality of sets of input data being used by the simulation system, the case manager means including a plurality of sets of case scenarios and a plurality of supersets of case scenarios organized in a tree-like structure (Col 94, Lines 42-45; Fig. 52 and Col 104, Lines 35-45).

However, **HU** does not expressly teach the case manager means including a plurality of sets of case scenarios and a plurality of supersets of case scenarios organized in a hierarchical, non-conventional tree-like structure, the tree like structure being non-conventional in that some of the case scenarios being supersets of other of the case scenarios in the tree-like structure with the supersets underlying corresponding ones of the sets in the tree like structure. **RU** teaches the case manager means including a plurality of sets of case scenarios and a plurality of supersets of case scenarios organized in a hierarchical, non-conventional tree-like structure, the tree like structure being non-conventional in that some of the case scenarios being supersets of other of the case scenarios in the tree-like structure with the supersets underlying corresponding ones of

Art Unit: 2123

the sets in the tree like structure (Page 39, Para 3 and Para 5; Fig. 3.23), as that allows sharing similarities among sets, while preserving their differences (Page 38, Para 4) and modeling by structuring the sets and is helpful for reusing the sets (Page 41, Para 3). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** with the simulation system of **RU** that included the case manager means including a plurality of sets of case scenarios and a plurality of supersets of case scenarios organized in a hierarchical, non-conventional tree-like structure, the tree like structure being non-conventional in that some of the case scenarios being supersets of other of the case scenarios in the tree-like structure with the supersets underlying corresponding ones of the sets in the tree like structure, as that would allow sharing similarities among sets, while preserving their differences and modeling by structuring the sets and would be helpful for reusing the sets.

HU, **GU** and **RU** do not expressly teach case builder means for receiving the one or more of the case scenarios selected by the operator, editing or changing a set of data disposed within the selected case scenarios in response to editing actions taken by the operator, and, responsive thereto, generating a set of edited case scenarios. **CO** teaches case builder means for receiving the one or more of the case scenarios selected by the operator, editing or changing a set of data disposed within the selected case scenarios in response to editing actions taken by the operator, and, responsive thereto, generating a set of edited case scenarios (Col 12, Lines 34-37), as that facilitates the user to create test cases in a user friendly environment and store the cases for execution (Col 12, Lines 38-40). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU**, **GU** and **RU** with the simulation system of **CO** that included case builder means for receiving the one or more of

Art Unit: 2123

the case scenarios selected by the operator, editing or changing a set of data disposed within the selected case scenarios in response to editing actions taken by the operator, and, responsive thereto, generating a set of edited case scenarios, as that would facilitate the user to create test cases in a user friendly environment and store the cases for execution.

HU does not expressly report generator means for generating one or more reports which record the set of simulation results. **CO** teaches report generator means for generating one or more reports which record the set of simulation results (Col 12, Lines 54-58), as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation (Col 12, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the simulation system of **HU** and **BH** with the simulation system of **CO** that included report generator means for generating one or more reports which record the set of simulation results, as that would allow the user to analyze the simulation results and compare them with expected results and generate reports on the simulation.

Arguments

8.1 As per the applicants' argument that "**RU** does not depict a superclass below its corresponding class; ... the superset containing information from outside the set of higher entry ... the Examiner's argument does not apply to hierarchical structures", the examiner respectfully disagrees.

RU depicts a superclass below its corresponding class, the superset containing information from outside the set of higher entry as shown in Figure 3.23. Database organization

Art Unit: 2123

is conceptual, all done by linked lists, starting from one element and proceeding to other elements. The links indicate that the data in the linked sets are related. There is no constraint in the database to limit the amount of data in various sets connected by the links and the type of data in the sets. Similarly the data hierarchy is also conceptual. The database does not use data hierarchy since linked lists are used. There is no data above another data and no data below another data. It is how one draws the diagram to explain the conceptual organization to others.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

K. Thangavelu
Art Unit 2123
June 12, 2004



KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER